

both birds perching close together on a tree branch, simultaneously uttering a quiet, harsh toned *kur kur kur* call whilst twisting heads from side to side, alternately stretching and pointing the bill up or down.

No conclusive proof of breeding by *enigma* was obtained, but during late September and October 1995, birds were paired and holding territory in central Karakelang. Males were seen aggressively defending territories from encroaching individuals and on one occasion pair-bonding behaviour was observed; a presumed male caught a prey item, flew to join the female and presented the prey to her before both birds flew away.

Vocalisations

The two forms on Talaud are separable by call. *Enigma* most commonly gives a repetitive *kee kee kee kee kee*, each note usually repeated five times followed by a brief pause followed by 5 more notes; occasionally birds give 4 or 6 repeats; there is no variation in pitch and all notes are of equal length. *Chloris* also gives a version of this call, but there are always more repeats, sometimes up to 20, but more usually 7 to 10 notes and the call note is slightly disyllabic. The call of *enigma* is noticeably higher in pitch than *chloris*, and the note is monosyllabic.

A second call given by *enigma* consists of a disyllabic *ki-kac* or *ki-kee*, the first note hard and grating, rising in pitch, whilst the second note descends in pitch slightly, is more drawn out, but cuts off sharply. This call is similar to a double note call commonly given by *chloris*, but the latter species always produces a stronger, harsher note of lower pitch and the sequence is given at a greater speed and is not as stuttering as that of *enigma* usually is. This characteristic double note of *chloris* can be transcribed as *kee-ka*, the emphasis being on the second note.

On 2 March 1997 a pair of *enigma* were repeatedly chased and harried by an adult Black-naped Oriole *Oriolus chinensis* in the lower canopy of a 15 m tall tree. The kingfishers responded with a rapid, loud and monosyllabic alarm call *ki ki ki ki ki ki* lasting for approximately 5 or 10 seconds.

Discussion

Based on the evidence from recent fieldwork, in addition to that already available from specimens, *Halcyon enigma* should be accorded specific status. The two forms found on Talaud are morphologically similar; vocalisations, plumage and size differences alone might not provide sufficient basis on which to separate them. However, since there is clear ecological separation of the forms, with both almost certainly breeding residents on the islands, it seems that they exist sympatrically and must be regarded as distinct species.

Enigma is the only species endemic to the Talaud islands and listed as Near-threatened (White & Bruce 1986, Collar *et al.* 1994). Its conservation status is not of immediate concern, but recent developments on Karakelang, notably the establishment of a logging concession in the north of the island, require the 'species' status to be monitored. *Enigma* is dependent on forest, but on Karakelang large

areas of habitat still exist, with approximately 36 000 ha having protected status (PPA 1980). In addition the species does seem to be able to survive in heavily degraded forest habitat. Since deforestation is already widespread on Salibabu and in particular Kabaruan, it would be interesting to assess the present distribution of *enigma* on these islands. A clearer indication of the species' ability to adapt to secondary habitats, in competition with *chloris*, would then be available and predictions of the possible effect of logging on the species' population would be easier to assess.

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